

Map 4C Surface Area 1.3 p. 26-35

Cylindrical Packaging

A tennis ball has a diameter of 67 mm. A cylindrical container holds three stacked tennis balls. Determine the amount of material required for the container to the nearest square centimetre.



201mm

67 mm

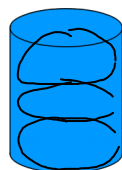
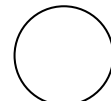
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Map 4C Surface Area 1.3 p. 26-35

Surface Area- Sum of the Area of all sides on a 3-D object

Net- A 2 dimensional pattern that can be folded to make a 3-D object

Example 1 p. 28

 $r = 33.5$ 

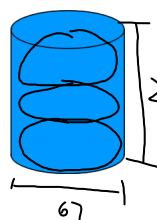
3 (67)



$$SA_{cyl} = 2(\pi r^2) + h \cdot d$$

$$SA_{cyl} = 2(\pi r^2) + 2\pi rh$$

$$d = 67 \text{ mm}$$



201mm (67 * 3)

67

33.5 mm

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$$SA_{cyl} = 2(\pi r^2) + 2\pi rh$$

$$r = 33.5$$

$$h = 201$$

$$= 2(\pi(33.5)^2) + 2\pi(33.5)201$$

$$= 2\pi(1122.25) + 42286.38$$

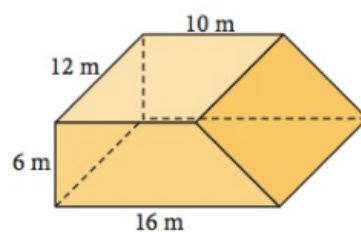
$$= 7047.74 + 42286.38$$

$$= 49334.12 \text{ mm}^2$$

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Example 2**Surface Area of a Composite Figure**

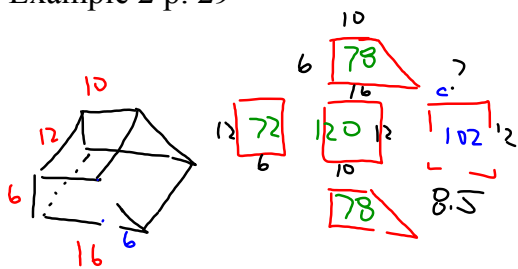
A riser is a raised platform used on a stage. This riser, for a rock performance, is to be painted.



Determine the surface area to be painted. Do not include the bottom of the riser.

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Example 2 p. 29



$$a^2 + b^2 = c^2$$

$$6^2 + 6^2 = c^2$$

$$36 + 36 = c^2$$

$$\sqrt{72} = \sqrt{c^2}$$

$$8.5 = c$$

$$A_T = \frac{(a+b)h}{2}$$

$$= \frac{(10+16)6}{2}$$

$$= 26(6)$$

$$= \frac{156}{2}$$

$$= 78$$

$$\begin{aligned} SA &= (12 \times 6) + (12 \times 10) + (12 \times 8.5) + 78 + 78 \\ &= 72 + 120 + 102 + 78 + 78 \\ &= 450 \text{ m}^2 \end{aligned}$$

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Key Concepts

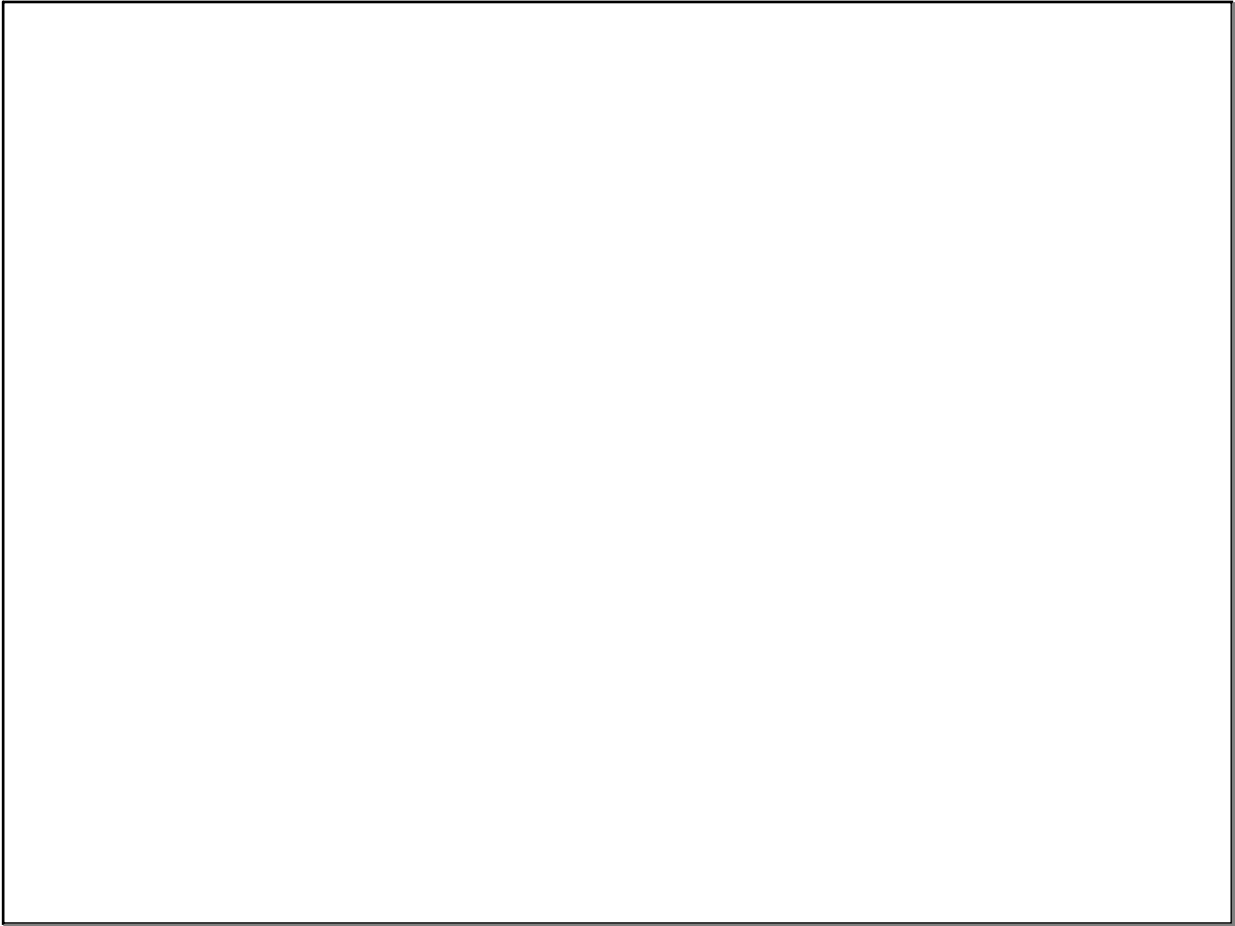
- surface area of 3-D figure is the sum of the areas of all of its outer faces, measured in square units
- A net is a 2-D model that shows the faces of a 3-D figure. Nets are useful for counting and identifying the shapes of the faces

Hmk. p32-35 q 1, 3-5 8,9,13*

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Senior Privs Friday
p.66 and 67

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Sep 12-7:17 AM